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EXAMINER	
PATEL, ASHOKKUMAR B	
ART UNIT	PAPER NUMBER
2154	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/523,582	DENFORD ET AL.	
	Examiner	Art Unit	
	ASHOK B. PATEL	2154	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 January 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-58* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-58* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *04/28/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-58 are subject to examination.

Drawings

2. New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because some of the details are not clearly visible and a cursory review of the drawings shows that the elements of the Figures are not described correctly, for example, para. [0055] of the published version of the instant application describes the elements of Fig. 22 located in Fig. 18. Applicant is advised to employ the services of a competent patent draftsperson outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 5 and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Referring to claim 5,

Claim recites in line 2 "and/or" The use of slashes symbol between descriptive elements in the claims renders the scope and meaning of the claims unclear, as slashes could be construed to mean "and", "or" or both "and" and "or".

For the purpose of this Office Action, "or" is being used.

Referring to claim 10,

Claim recites in line 2 "and/or" The use of slashes symbol between descriptive elements in the claims renders the scope and meaning of the claims unclear, as slashes could be construed to mean "and", "or" or both "and" and "or".

For the purpose of this Office Action, "or" is being used.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-58 are rejected under 35 U.S.C. 102(e) as being anticipated by El Ata (US 2002/0049573 A1). (**Examiner's note:** Please also refer to US 6, 311, 144 as para. [0017] of US 2002/0049573 incorporates it by reference.)

Referring to claim 1,

El Ata teaches an apparatus for analysing systems (Fig.1), the apparatus comprising

an architecture storing means (para.[0052], "Those of ordinary skill in the art realize that processes involved in an automated system and method for designing model based architectures of information systems may be embodied in an article of manufacture that includes a computer-usable medium. For example, such a computer usable medium can include a readable memory device, such as a hard drive device, a CD-ROM, a DVD-ROM, a computer diskette or solid-state memory components (ROM, RAM), having computer readable program code segments stored thereon. The computer readable medium can also include a communications or transmission medium, such as a bus or a communications link, either optical, wired, or wireless, having program code segments carried thereon as digital or analog data signals.") for storing architecture information about the architecture of the system (para. [0043], [0043] FIG. 4 illustrates a model based architecture of an information system resulting from the automated design process according to the foregoing embodiment of FIGS. 1-2B. Embodiments of the model based architecture 400 include an applications layer 405 and a technology layer 450 with the applications layer 405 further divided into sub-layers, including a business applications layer 410, an application bus layer 420, an application services layer 430, and a technology bus layer 440. The application sub-layers implement a number of guiding principles, constraints, and guidelines in order to design an extendable system architecture that supports complex, multi-dimension, multi-function, and right time critical business solutions."),

evaluation means for evaluating the architecture in terms of non-functional requirements of the system (para. [0018], "The performance modeling module 30 models performance metrics at each layer of the multi-layer mathematical model of the system architecture. Some of the business requirements, such as definitions of business flow and workload, are utilized in calculating the performance metrics. ", [0019], "For each business process, the comparison module 40 compares the modeled performance metrics output by performance modeling module 30 with the defined set of business requirements provided at business design module 10. The comparison module 40 produces indications of whether one or more business processes exhibit unacceptable performance metrics that do not satisfy the input business requirements."),

utilising the architecture information (para. 0021], "If accepted, the architecture construction module 20 automatically incorporates the proposed modifications into the model of the system architecture without further assistance from the system architect. The performance metrics for the modified system architecture are updated by the performance modeling module 30 and compared again by the comparison module 40. If the modeled business performance metrics do satisfy the business requirements, an output module 60 provides a detailed description of the system architecture to the system architect for use in subsequent implementation stages. Otherwise, embodiments of the automated system continue to iterate through the modification, modeling, and comparison stages of modules 50, 20, 30, and 40. This process continues until either the modeled performance metrics of each business process satisfy the business

requirements or the performance metrics of the supporting hardware and software component models cannot be improved further without a change to the business process design."), and

visualization means for providing a visual representation of the system architecture from the stored architecture information (para. [0032], "If, at 160, the modeled business performance metrics satisfy the business requirements of each business process, the proposed system architecture is forwarded to the output module 60 at 170 to output a detailed description of the specifications of the model based system architecture. The output module 60 formats the system architecture model into a detailed set of "blueprints" describing the construction and implementation of the system architecture. According to one embodiment, the format of the output is a Universal Markup Language (UML) document, which can be displayed readily through an Internet browser. The UML-generated display can display the system architecture containing hyperlinks between components within the business, application, and technology layers. ").

Referring to claim 2,

El Ata teaches an apparatus in accordance with claim 1, wherein the visualisation means is arranged to provide a visual representation in the form of a hierarchical three dimensional view (para. [0032], "If, at 160, the modeled business performance metrics satisfy the business requirements of each business process, the proposed system architecture is forwarded to the output module 60 at 170 to output a detailed description of the specifications of the model based system architecture. The output module 60 formats the system

architecture model into a detailed set of "blueprints" describing the construction and implementation of the system architecture. According to one embodiment, the format of the output is a Universal Markup Language (UML) document, which can be displayed readily through an Internet browser. The UML-generated display can display the system architecture containing hyperlinks between components within the business, application, and technology layers. ").

Referring to claim 3,

El Ata teaches an apparatus in accordance with claim 2, being arranged to represent the stored architecture information as an architectural model, the architectural model including "Components" and Connections" between the Components, wherein Components are entities within the system and Connections are bonds or relations between Components (para.[0043]-[0051]). .

Referring to claim 4,

El Ata teaches an apparatus in accordance with claim 3, wherein Components and Connections may have properties (para. [0043]- [0051]).

Referring to claim 5,

El Ata teaches an apparatus in accordance with claim 4, wherein the Components and Connections include values, for data and/or functional and behavioural parameters (para. [0043]- [0051]).

Referring to claim 6,

El Ata teaches an apparatus in accordance with claim 5, wherein Components and Connections may include Sub-Components and Sub-connections (para. [0043]- [0051]).

Referring to claim 7,

El Ata teaches an apparatus in accordance with claim 6, the model further comprising Ports, Ports being arranged to connect Components and Connections (para.[0043]-[0051])..

Referring to claim 8,

El Ata teaches an apparatus in accordance with claim 7, wherein each Connection Port can only be attached to one Component Port (para. [0043]-[0051]).

Referring to claim 9,

El Ata teaches an apparatus in accordance with claim 8, wherein Connections are first order entities, being recognised as equally important in the model as Components (para. [0043]- [0051]).

Referring to claim 10,

El Ata teaches an apparatus in accordance with claim 9, wherein Components and/or Connections may be designated as a certain Type (para. [0043]- [0051]).

Referring to claim 11,

El Ata teaches an apparatus in accordance with claim 10, wherein i0 Components may be designated as Devices, Devices having processing Capacity (para. [0043]- [0051]).

Referring to claim 12,

El Ata teaches an apparatus in accordance with claim 11, wherein Devices are shared between Components requiring processing capacity (para. [0043]- [0051]).

Referring to claim 13,

El Ata teaches an apparatus in accordance with claim 12, wherein any Component at any level of the hierarchy can be attached via a Connection to any other (or the same) Component and any other (or the same) level of the hierarchy (para.[0043]-[0051]).

Referring to claim 14,

El Ata teaches an apparatus in accordance with claim 13, the model further comprising Implementations including groups of standard Properties collected under a name, standard Implementation and which may be related to multiple Components or Connections (Fig. 3 and 4, para. .[0032], para.[0043]-[0051]).

Referring to claim 15,

El Ata teaches an apparatus in accordance with claim 4, wherein the three dimensional view includes components represented as objects and connections represented as links between the objects, and wherein an object may include, represented within the object space, further components and connections in the system which are of a lower hierarchy within the architecture (Fig. 3 and 4, para. . [0032], para. [0043]- [0051]).

Referring to claim 16,

El Ata teaches an apparatus in accordance with claim 4, wherein different components or connections are distinguished from each other by altering a visual property of each different component or connection (Fig. 3 and 4, para. .[0032], para.[0043]-[0051]).

Referring to claim 17,

El Ata teaches an apparatus in accordance with claim 16, wherein the visual property is the colour of the component or connection (para. [0024], Fig. 3 and 4, para. . [0032], para. [0043]- [0051]).

Referring to claim 18,

El Ata teaches an apparatus in accordance with claim 16, wherein the visual property is the relative size of the component or connection (para. [0024], Fig. 3 and 4, para. . [0032], para. [0043]- [0051]).

Referring to claim 19,

El Ata teaches an apparatus in accordance with claim 16, wherein the visual property is the shape of the component or connection (para. [0024], Fig. 3 and 4, para. . [0032], para. [0043]- [0051]).

Referring to claim 20,

El Ata teaches an apparatus in accordance with claim 15, wherein the visualisation means enables a user to manipulate the three dimensional model in order to access different hierarchy levels (para. [0024], Fig. 3 and 4, para. . [0032], para. [0043]- [0051]).

Referring to claim 21,

El Ata teaches an apparatus in accordance with claim 15, wherein the visualisation means enables the user to manipulate the three dimensional view to see it from different perspectives (para. [0024], Fig. 3 and 4, para. . [0032], para. [0043]- [0051]).

Referring to claim 22,

El Ata teaches an apparatus in accordance with claim 15, wherein the 20 visualisation means is arranged to provide the visual representation in the form of a hierarchical tree view (para. [0024], Fig. 3 and 4, para. . [0032], para. [0043]- [0051]).

Referring to claim 23,

El Ata teaches an apparatus in accordance with claim 15, wherein the visualisation means is arranged to provide a plurality of different visual representations, whereby the architecture of the complex system can be viewed from a plurality of different perspectives (para. [0024], Fig. 3 and 4, para. . [0032], para. [0043]- [0051]).

Referring to claim 24,

El Ata teaches an apparatus in accordance with claim 1, wherein the evaluation means includes a simulation means arranged to utilise the architecture model to simulate operation of the system, whereby the system operation may be evaluated (para. [0024], Fig. 3 and 4, para. . [0032], para. [0043]- [0051]).

Referring to claim 25,

El Ata teaches an apparatus in accordance with claim 1, wherein the architecture storing means is arranged to store a plurality of different levels of abstraction of the architecture, and wherein the apparatus enables a user to view the architecture at any of the plurality of levels (para.[0017], Fig. 3 and 4, para. [0032], para. [0043]- [0051]).

Referring to claim 26,

El Ata teaches an apparatus in accordance with claim 1, including capability space diagram generating means for generating capability space representations, providing a model of required system capability with respect to systems requirements properties (para.[0017], Fig. 3 and 4, para. [0032], para. [0043]- [0051]).

Referring to claim 27,

El Ata teaches an apparatus in accordance with claim 26, wherein the capability space representation includes a frame reference axis drawn from the properties that comprise the systems functional schema model (para.[0017], Fig. 3 and 4, para. .[0032], para.[0043]-[0051]).

Referring to claim 28,

El Ata teaches an apparatus in accordance with claim 27, wherein the capability space diagram has more than two dimensions (para. [0017], Fig. 3 and 4, para. [0032], para. [0043]- [0051]).

Referring to claim 29,

Claim 29 is a claim to a method incorporated by the apparatus of claim 1. Therefore claim 29 is rejected for the reasons set forth for claim 1.

Referring to claim 30,

Claim 30 is a claim to a method incorporated by the apparatus of claim 2. Therefore claim 30 is rejected for the reasons set forth for claim 2.

Referring to claim 31,

Claim 31 is a claim to a method incorporated by the apparatus of claim 3. Therefore claim 31 is rejected for the reasons set forth for claim 3.

Referring to claim 32,

Claim 32 is a claim to a method incorporated by the apparatus of claims 4 and 5. Therefore claim 32 is rejected for the reasons set forth for claims 4 and 5.

Referring to claim 33,

Claim 33 is a claim to a method incorporated by the apparatus of claim 7. Therefore claim 33 is rejected for the reasons set forth for claim 7.

Referring to claim 34,

Claim 34 is a claim to a method incorporated by the apparatus of claim 12. Therefore claim 34 is rejected for the reasons set forth for claim 12.

Referring to claim 35,

El Ata teaches method in accordance with claim 31, wherein the architecture information also includes information on constraints of the system (Fig. 2B flow chart).

Referring to claim 36,

Claim 36 is a claim to a method incorporated by the apparatus of claim 15. Therefore claim 36 is rejected for the reasons set forth for claim 15.

Referring to claim 37,

Claim 37 is a claim to a method incorporated by the apparatus of claim 16. Therefore claim 37 is rejected for the reasons set forth for claim 16.

Referring to claim 38,

Claim 38 is a claim to a method incorporated by the apparatus of claim 17. Therefore claim 38 is rejected for the reasons set forth for claim 17.

Referring to claim 39,

Claim 39 is a claim to a method incorporated by the apparatus of claim 18. Therefore claim 39 is rejected for the reasons set forth for claim 18.

Referring to claim 40,

Claim 40 is a claim to a method incorporated by the apparatus of claim 19. Therefore claim 40 is rejected for the reasons set forth for claim 19.

Referring to claim 41,

Claim 41 is a claim to a method incorporated by the apparatus of claim 20. Therefore claim 41 is rejected for the reasons set forth for claim 20.

Referring to claim 42,

Claim 42 is a claim to a method incorporated by the apparatus of claim 21. Therefore claim 42 is rejected for the reasons set forth for claim 21.

Referring to claim 43,

Claim 43 is a claim to a method incorporated by the apparatus of claim 22. Therefore claim 43 is rejected for the reasons set forth for claim 22.

Referring to claim 44,

Claim 44 is a claim to a method incorporated by the apparatus of claim 23. Therefore claim 44 is rejected for the reasons set forth for claim 23.

Referring to claim 45,

Claim 45 is a claim to a method incorporated by the apparatus of claim 24. Therefore claim 45 is rejected for the reasons set forth for claim 24.

Referring to claim 46,

El Ata teaches a method in accordance with claim 45, further including the step of enabling re-modelling of the stored architecture information to provide an amended architecture, whereby the amended architecture may be evaluated in terms of non-functional requirements. (Fig. 2B flow chart).

Referring to claim 47,

Claim 47 is a claim to a method incorporated by the apparatus of claim 25. Therefore claim 47 is rejected for the reasons set forth for claim 25.

Referring to claims 48 and 49,

Claims 48 and 49 are claims to a method incorporated by the apparatus of claim 26. Therefore claims 48 and 49 are rejected for the reasons set forth for claim 26.

Referring to claim 50,

Claim 50 is a claim to a method incorporated by the apparatus of claim 27. Therefore claim 50 is rejected for the reasons set forth for claim 27.

Referring to claim 51,

Claim 51 is a claim to a method incorporated by the apparatus of claim 28. Therefore claim 51 is rejected for the reasons set forth for claim 28.

Referring to claim 52,

El Ata teaches a method of evaluating a system, comprising the steps of utilising an apparatus in accordance with claim 1 to model the architecture of the system and to evaluate the system in terms of non-functional requirements of the system, utilising the architectural information that has been modeled (Figs. 1, 2A and 2B flow charts).

Referring to claim 53,

El Ata teaches a method in accordance with claim 52, including the further step of proposing changes to the architectural model and re-evaluating. (Figs. 1, 2A and 2B flow charts).

Referring to claim 54,

El Ata teaches a method of developing a system, utilising the apparatus of claim 1, comprising the steps of defining a complex system architecture and modelling the architecture utilising the apparatus of claim 1, and evaluating the system architecture in terms of non-functional requirements it is proposed to meet. (Figs. 1, 2A and 2B flow charts).

Referring to claim 55,

El Ata teaches a method in accordance with claim 54, comprising the further step of proposing changes to the architectural model and re-evaluating. (Figs. 1, 2A and 2B flow charts).

Referring to claim 56,

El Ata teaches a method in accordance with claim 55, comprising the further step of engineering the system in accordance with the architecture that has been modelled. (Figs. 1, 2A and 2B flow charts).

Referring to claim 57,

Claim 57 is a claim to a computer program arranged, when loaded onto a computing system, to control the computing system to implement a method in accordance with claim 29. Therefore claim 57 is rejected for the reasons set forth for claim 29.

Referring to claim 58,

Claim 58 is a claim to a computer readable medium providing a computer program in accordance with claim 57. Therefore claim 58 is rejected for the reasons set forth for claim 57.

Conclusion

Examiner's note: Examiner has cited particular columns and line numbers in the references as applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to the specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ashok B. Patel whose telephone number is (571) 272-3972. The examiner can normally be reached on 6:30 am-4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan A. Flynn can be reached on (571) 272-1915. The

fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ashok B. Patel/

Ashok B. Patel
Examiner,
Art Unit 2154